

## Earth and Space Science Honors

5 credits - Level: Honors (This course fulfills the graduation requirement for earth and space science.)

Grade: 9-12

Prerequisite: Minimum grade of A, with no more than one B, in all four marking periods in 8<sup>th</sup> grade science, score advanced proficient on both the science and the language arts literacy sections of the NJ ASK 8.

This laboratory course requires students to employ previously and newly learned scientific and problem-solving skills along with appropriate technology to a study of the Earth, the Earth's movement in space, and how events on Earth affect human activity. The scope of this course ranges from an in-depth examination of the movement of the Earth's plates to how man has adapted to changes in his environment caused by himself or natural events.

### PROFICIENCIES

Upon completion of the course, the student will be able to:

1. Apply the theory of plate tectonics to explain the relationship among earthquakes, volcanoes, mid-ocean ridges and deep sea trenches.
2. Infer changes in the earth using evidence provided by topography, fossils, rock stratification, ice cores and/or radiometric data.
3. Explain how weather phenomena and human activity are interrelated.
4. Predict how a human activity or natural phenomena may affect water quality needed to sustain life.
5. Evaluate given data about water quality, the risks and benefits of alternate solution actions to maintain water quality needed to sustain life.
6. Evaluate evidence that supports scientific theories of the origin of the universe.
7. Construct a model that illustrates how seasons and latitude affect variations in the length of day and night.
8. Use a diagram to show how seasons in the northern and southern hemisphere are opposite at any given time.
9. Evaluate the impact of a natural phenomenon on an area and predict the impact on the population.
10. Use data to analyze environmental risks and benefits associated with human activity and the use of natural resources.
11. Apply the concept of ecosystems to understand and propose solutions to problems regarding traditional and alternative energy sources, land and soil management, waste management, and water and air quality.